FAIRCHILD SEMICONDUCTOR®

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# FSUSB104 — Low-Power, Two-Port, Hi-Speed, USB2.0 (480Mbps) Switch

## Features

- Low On Capacitance: 3.7pF Typical
- Low On Resistance: 3.9Ω Typical
- Low Power Consumption: 1µA Maximum
  - 15µA Maximum $I_{CCT}$ over an Expanded Voltage Range ($V_{IN}$=1.8V, $V_{CC}$=4.3V)
- Wide -3db Bandwidth: > 720MHz
- Packaged in Pb-free 10-Lead UMLP (1.4 x 1.8mm)
- 8kV ESD Rating, >16kV Power/GND ESD Rating
- Power-Off Protection on All Ports When $V_{CC}$=0V
  - D+/D- Pins Tolerate up to 5.25V

## Applications

- Cell phone, PDA, Digital Camera, and Notebook
- LCD Monitor, TV, and Set-Top Box

## IMPORTANT NOTE:

For additional performance information, please contact analogswitch@fairchildsemi.com.

## Description

The FSUSB104 is a bi-directional, low-power, two-port, Hi-Speed, USB2.0 switch. Configured as a double-pole, double-throw switch (DPDT) switch, it is optimized for switching between two Hi-Speed (480Mbps) sources or a Hi-Speed and Full-Speed (12Mbps) source.

The FSUSB104 is compatible with the requirements of USB2.0 and features an extremely low on capacitance ($C_{ON}$) of 3.7pF. The wide bandwidth of this device (720MHz) exceeds the bandwidth needed to pass the third harmonic, resulting in signals with minimum edge and phase distortion. Superior channel-to-channel crosstalk also minimizes interference.

The FSUSB104 contains special circuitry on the switch I/O pins for applications where the $V_{CC}$ supply is powered-off ($V_{CC}$=0), which allows the device to withstand an over-voltage condition. This device is designed to minimize current consumption even when the control voltage applied to the SEL pin is lower than the supply voltage ($V_{CC}$). This feature is especially valuable to ultra-portable applications, such as cell phones, allowing for direct interface with the general-purpose I/Os of the baseband processor. Other applications include switching and connector sharing in portable cell phones, PDAs, digital cameras, printers, and notebook computers.

## Ordering Information

| Part Number | Top Mark | Operating Temperature Range | Eco Status | Package |
|---|---|---|---|---|
| FSUSB104UMX | JF | -40 to +85°C | Green | 10-Lead, Quad, Ultrathin Molded Leadless Package (UMLP), 1.4 x 1.8mm |

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*For Fairchild's definition of "green" Eco Status, please visit: http://www.fairchildsemi.com/company/green/rohs_green.html.*

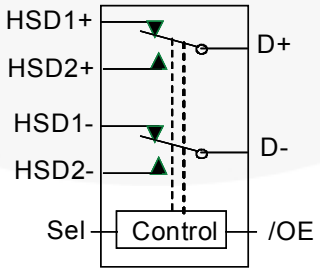


**Figure 1. Analog Symbol**

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## PRODUCT STATUS DEFINITIONS

**Definition of Terms**

| Datasheet Identification | Product Status | Definition |
|---|---|---|
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| Preliminary | First Production | This datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design. |
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